We claim:

1. A lithography system comprising:
   - means for generating a plurality of light beamlets;
   - an electron source, arranged to be illuminated by said light beamlets, said electron source comprising a plurality of converter elements at an element distance from each other for converting a light beamlet impinging onto it into an electron beamlet directed towards and focused on an object plane, and
   - control means for matching the mutual positions of the light beamlets with respect to the mutual positions of the electron beamlets.

2. A lithography system of claim 1, wherein the control means for manipulating the mutual positions of the light beamlets and the electron beamlets comprise converter adaptive means for actively adapting the distance between at least two electron beamlets of the converter, wherein the converter adaptive means preferably comprise means for adapting the physical properties of the converter, said means for adapting the physical properties of the converter preferably comprising means for changing the element distance between at least two elements.

3. A lithography system of claim 2, wherein the means for changing the element distance comprise converter-related thermal means for changing the temperature of the converter, wherein said converter-related thermal means preferably are adapted to change the temperature of the converter, preferably either uniformly or according to a predetermined temperature profile.

4. A lithography system of claim 2, wherein the means for changing the element distance comprise converter-related mechanical means for applying mechanical forces to the converter, wherein said converter-related mechanical means preferably comprise means for applying the forces either uniformly or according to a predetermined profile, and wherein the mechanical forces preferably are either pressure forces, tension forces, torsion forces or a combination of any one of these three forces.

5. A lithography system of claim 1, wherein said means for generating a plurality of light beamlets comprise:

- at least one light source for generating a light beam, and
- a micro lens array, arranged in the light path of said light source between said light source and said electron source, and comprising a plurality of lenses at a lens distance from each other, said plurality of lenses being arranged for forming said plurality of light beamlets, and for focussing said focusing said plurality of light beamlets onto said electron source.

6. A lithography system of claim 5, wherein the said at least one light source is individually controllable.

7. A lithography system of claim 5, wherein the control means comprise micro lens adaptive means for actively adapting the positions of focal points of at least one micro lens of the micro lens array, wherein the micro lens adaptive means preferably comprise means for adapting the physical properties of the micro lens array, wherein the means for adapting the physical properties of the micro lens array preferably comprises means for changing the lens distances.

8. A lithography system of claim 5, wherein the means for changing the lens distance comprises microlens-related thermal means for changing the temperature of the micro lens array, wherein the microlens-related thermal means preferaby are adapted to change the temperature of the micro lens array either uniformly or according to a predetermined temperature profile.

9. A lithography system of claim 5, wherein the means for changing the lens distance comprises microlens-related mechanical means for applying m chanical forces to the micro lens array, wherein said microlens-related mechanical means preferably comprise means for applying the forces either uniformly or according to a predetermined profile and wherein the mechanical forces preferably ar either pressure forces, t nsion forces, torsion forces or a combination of any one of these three forc s.

10. A lithography system of claim 5, wherein the control m ans comprise adaptive means for substantially matching said lens distance with said element distance by either expansion or contraction of at least one of said micro lens array and said electron source, wherein said adaptive means preferably comprise microlens-related thermal means for modifying said lens distance by either thermal expansion or contraction of said micro lens array, wherein said microlens-related thermal means preferably comprise

- microlens-related thermal elements, preferably arranged to generate a microlens-related heat flow to or from said micro lens array, and
- a microlens-related thermal controller, preferably arranged to control said microlens-related heat flow in dependence of a microlens-related control signal relating to the temperature of said micro lens array, which is preferably generated by a microlens-related temperature sensor for sensing the temperature, wherein said control is preferably related to a value of a detector signal generated by a microlens-related detector for indicating the match of said lens distance and said element distance.

11. A lithography system of claim 5, wherein the control means comprise adaptive means for substantially matching said lens distance with said element distance by either expansion or contraction of at least one of said micro lens array and said electron source, wherein said adaptive means preferably comprise converter-related thermal means for modifying said element distance by either thermal expansion or contraction of said electron source wherein said converter-related thermal means preferably comprise

- converter-related thermal elements, preferably arranged to generate a converter-related heat flow to or from said electron source, and
- a converter-related thermal controller, preferably arranged to control said converter-related heat flow in dependence of a converter-related control signal relating to the temperature of said electron source, which is preferably generated by a converter-related temperature sensor for sensing the temperature, wherein said control is preferably related to a value of a detector signal generated by a converter-related detector for indicating the match of said lens distance and said element distance.

12. A lithography system of claim 5, comprising first optical means for modifying the light from said at least one light source illuminating the micro lens array, wherein said first optical means preferably comprises a lens or system of lenses, for modifying the true or virtual focal point of the light from the light source.

13. A lithography system of claim 5, comprising first optical means for modifying the light from said at least one light source illuminating the micro lens array, wherein said first optical means preferably comprise liquid crystal means for adaptively modifying the phase of the light from the light source, wherein the modification is preferably performed locally in a plane parallel to the micro lens array.

14. A lithography system of claim 5, wherein the control means comprise adaptive means for substantially matching said lens distance with said element distance by either expansion or contraction of at least one of said micro lens array and said electron source, wherein said adaptive means preferably comprise mechanical means for applying mechanical forces to at least one of said micro lens array and said electron source for expanding or contracting of one of said micro lens array and said electron source.

15. A lithography system of claim 5, wherein the control means comprise adaptive means for substantially matching said lens distance with said element distance by either expansion or contraction of at least one of said micro lens array and said electron source, wherein said adaptive means preferably comprise optical means preferably comprising either

- phase shift gradient means preferably including an LC-screen placed before or after the micro lens array or
- a refractive lens before the micro lens array, preferably comprising means for displacing said refractive lens along the optical axis.

16. A lithography system of claim 1, wherein said lithography system further comprises

- a mask comprising an image, and said light beamlet from each of said plurality of lenses is being focused on said mask
- an optical system being arranged for projecting said image on said electron source by said light beamlets of each of said plurality of lenses.

17. A lithography system of claim 16, further comprising mask-holding means for holding a mask between the micro lens array and the electron source, wherein said control means comprise mask adaptive means for actively adapting the working parameters of the mask, wherein the mask adaptive means preferably comprise means for adapting the mutual distances of at least two features on the mask.

18. A lithography system of claim 17, wherein the mask adaptive means comprise mask-related thermal means for changing the temperature of the mask, wherein said mask-related thermal means are adapted to change the temperature of the mask either uniformly or according to a predetermined temperature profile.

19. A lithography system of claim 18, wherein the mask adaptive means comprise mask-related mechanical means for applying mechanical forces to the mask, wherein said mask-related mechanical means comprise means for applying the forces either uniformly or according to a predetermined profile and wherein the mechanical forces are either pressure forces, tension forces, torsion forces or a combination of any one of these three forces.

20. A lithography system according to claim 16, wherein the control means comprise:

- measuring means for measuring the actual positions of at least one selected from the light beamlets and the electron beamlets;
- a comparator for comparing the actual positions of at least one selected from the light beamlets and the electron beamlets with desired positions;
- a processor for calculating a target setting of the positions, based on the comparisons of the comparator;

- a controlling element for adapting at least one of the working parameters of at least one of the micro lens array, the mask and the converter until the desired positions are reached.

21. A lithography system according to claim 1, wherein the control means comprise magnetic means for actively adapting the positions of electron beamlets in the object plane, wherein the magnetic means preferably comprises at least one magnetic field generator for modifying the magnetic field between the electron source and the object plane, wherein said magnetic field generator preferably applies a continuously varying magnetic field with a non-uniform magnetic field component, thus preferably creating a dipole or quadrupole field between the electron source and the object plane, said magnetic field preferably having a field strength that is increasing uniformly in at least one direction in a plane parallel to the object plane and furthermore increasing with the distance from the optical axis of the lithography system, especially when said magnetic field component is the radial component.

22. Substrate processed using a lithography system according to claim 1.

23. Method for processing a substrate, using a lithography system according to claim 1.